

REMARKS

The Office Action mailed September 26, 2002 has been reviewed and carefully considered.

Claims 1-10 have been amended. Claims 1-10 are pending in this application.

Claims 4-10 have been objected to. Claims 4, 9, and 10 have been amended in accordance with the Examiner's suggestions. Claims 5-8 depend from Claim 4 and, thus, contain all of the limitations of Claim 4. Accordingly, Claims 4-10 have been corrected with respect to the identified formalities. Reconsideration of the objections is respectfully requested.

Rejection under 35 U.S.C. §103(a)

Claims 1 and 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schuster et al. (hereinafter "Schuster") in view of Trew et al (hereinafter "Trew"). Claims 2 and 3 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schuster in view of Trew, as applied to the above Claims 1 and 4-10 and further in view of Rangan et al. (hereinafter "Rangan").

Claim 1 has been amended to now recite, *inter alia*,

"...receiving a user provided input that selects an object of interest from the separate objects by a user identifying a centroid of the object of interest; and tracking the object of interest through successive frames of the video image sequence using a Kalman predictive algorithm applied to the centroid..."

Moreover, Claim 4 has been amended to now recite, *inter alia*, "selecting a separated object by a user identifying a reference point within a boundary of the separated object; and ... tracking the selected object through successive frames of the video image sequence using a Kalman predictive algorithm applied to the reference point." Applicants respectfully assert that neither Schuster nor Rangan disclose the preceding limitations.

Rather, Schuster discloses the use of an exact mathematical description used in an ellipsoid model of the distribution inside clusters. Schuster defines clusters as coherent regions in a color histogram that are occupied by significant values. The ellipsoid model disclosed in Schuster involves mathematically calculating a cluster centroid b from the following equation:

$$b = \frac{1}{n} \sum_{i=1}^n v_i h(v_i).$$

Clearly, the selection of an objection of interest by a user identifying the centroid/reference point of the object of interest and the use of this user-selected centroid/reference point for tracking the object with a Kalman predictive algorithm, as substantially claimed in Claims 1 and 4 does not correspond to the mathematical calculation of a centroid for use in an ellipsoid model of a cluster as disclosed by Schuster.

For example, Claims 1 and 4 use a user-selected centroid for object selection and subsequent tracking, and not an exact mathematical calculation involving integration, which is clearly more complex and resource intensive (CPU, memory) than simply allowing a user to identify a centroid/reference point by marking the same.

While Trew discloses a block of 3 x 3 pixels having the pixel of interest at its center (Trew, col. 4, lines 26-27)), such disclosure corresponds to a comparison step that compares the updated template with the region of the next frame selected by the transformed mask at the position of the template match (Trew, col. 3, lines 66-68), and not a selection step nor a step performed by a user as substantially claimed in Claims 1 and 4. This is not surprising as Trew forms an initial template of the object to be tracked and extracts a mask that outlines the object to be tracked (Trew, col. 2, lines 23-25). Applicants cannot find any disclosure in Trew where a user-selected centroid/reference point is used to first select an object of interest and then to track that object using a Kalman predictive algorithm. Applicants respectfully point out to the Examiner that the Kalman filter disclosed in Trew is applied subsequent to the above-mentioned comparison step and is not disclosed with respect to performing tracking based on a user-selected centroid/object of interest, as is substantially claimed in Claims 1 and 4 (see also, Claims 5-7).

Accordingly, neither Schuster nor Trew, either taken singly or in combination, disclose the preceding limitations of Claims 1 and 4. Thus, Claims 1 and 4 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above.

With respect to Claims 2 and 3, Applicants respectfully assert that Rangan does not cure the deficiencies of Schuster and/or Trew as Rangan also does not disclose the preceding limitations of Claims 1 and 4.

Claims 2 and 3 depend from Claim 1 and thus contain all the limitations of Claim 1. Claims 5-10 depend from Claim 4 or a claim which itself is dependent from Claim 4 and, thus, contain all the limitations of Claim 4. Accordingly, Claims 2-3 and 5-10 are patentably distinct and non-obvious over the cited reference for at least the reasons set forth above with respect to Claims 1 and 4, respectively.

Accordingly, reconsideration of the rejections is respectfully requested.

In view of the foregoing, Applicants respectfully request that the rejection of the claims set forth in the Office Action of September 26, 2002 be withdrawn, that pending claims 1-10 be allowed, and that the case proceed to early issuance of Letters Patent in due course.

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required in connection with the application, they may be charged to applicant's Deposit Account No. 07-0832.

Respectfully submitted,

A. M. Murching et al.

August 27, 2003

By:-

Francis A. Davenport

Francis A. Davenport

Reg. No. 36,316

Phone (609) 734-6805

Patent Operations
Thomson Licensing Inc. Suite 200
P.O. Box 5312
Princeton,
New Jersey 08543-5312